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| 10/619,672 | 07/14/2003 | Nicholas Paul Cowley | MARSP0169US | 7076 |

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MARK D. SARALINO (GENERAL)
RENNER, OTTO, BOISSELLE & SKLAR, LLP
1621 EUCLID AVENUE, NINETEENTH FLOOR
CLEVELAND, OH 44115-2191

EXAMINER

VO, NGUYEN THANH

| ART UNIT | PAPER NUMBER |
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2685

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,672

Applicant(s)

COWLEY ET AL.

Examiner

Nguyen T. Vo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There are two claims 5 in the present application. It is suggested that the first claim 5 should be changed to claim 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as admitted by applicant on pages 1-2 of the present specification (hereinafter simply referred to as the admitted prior art) in view of Muschallik (US 2004/0087279 A1, cited by examiner).

As to claim 1, the admitted prior art discloses a single conversion tuner for digital terrestrial broadcast signals, comprising a tuner input; a single frequency changer for converting any selected one of a plurality of channels to a non-zero output intermediate frequency for demodulation, said frequency changer comprising an image reject mixer and a local oscillator ranged to supply to said mixer a local oscillator signal (see page 1 of the present specification). The admitted prior art fails to disclose the local oscillator having a frequency which is substantially equal to a sum of a frequency of said selected channel and said output intermediate frequency; and a non-alignable low pass filter having a turnover frequency and being arranged to track said frequency of said local oscillator such that said turnover frequency of said low pass filter is greater than said frequency of said selected channel and less than a sum of said frequency of said selected channel and twice said output intermediate frequency. Muschallik discloses a tuner (see block 1 in figure 1) comprising a tuner input (see the input to block 1 in figure 1); a single frequency changer (see the frequency converter 11, 12; see also paragraph [0070]) for converting any selected one of a plurality of channels to a non-zero output

intermediate frequency for demodulation (in this case, the non-zero output IF as claimed reads on the low IF at paragraph [0075]), said frequency changer comprising an image reject mixer (see “the image rejection mixing” at paragraph [0075]) and a local oscillator 40 (see figure 1) arranged to supply to said mixer a local oscillator signal having a frequency which is substantially equal to a sum of a frequency of said selected channel and said output intermediate frequency (see paragraph [0080]); and a non-alignable low pass filter (see filters 22-23 in figure 1; see also paragraph [0075]) having a turnover frequency and being arranged to track said frequency of said local oscillator such that said turnover frequency of said low pass filter is greater than said frequency of said selected channel and less than a sum of said frequency of said selected channel and twice said output intermediate frequency (see paragraphs [0075], [0098]; see also figures 4-6). In addition, Muschallik does not state that the low pass filters 22-23 must be aligned during manufacture. Accordingly, the filters 22-23 reads on “non-alignable low pass filter” as claimed for the broadest reasonable interpretations. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Muschallik to the admitted prior art, in order to provide for the effective provision of anti-aliasing filtering depending on the frequency synthesis method (as suggested by Muschallik at paragraph [0032]).

As to claim 2, the above combination of the admitted prior art and Muschallik fails to disclose that the low pass filter provides 15 decibels of attenuation as claimed. Those skilled in the art, however, would have recognized that the above limitations would not render the claim patentable over the combination of the admitted prior art and

Muschallik because it would merely depend on how much attenuation one would like to provide to his filter. In addition, the examiner takes Official Notice that such a filter which provides 15 decibels of attenuation is known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of the admitted prior art and Muschallik such that the low pass filter provides 15 decibels of attenuation, in order to improve received signal quality because more unwanted signals would be attenuated.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Muschallik as applied to claim 1 above, and further in view of Katsuyama (6,112,070, cited by applicant).

As to claim 3, the above combination of the admitted prior art and Muschallik fails to disclose a digital/analog converter for controlling said low pass filter and a memory containing a look-up table for receiving a channel request and for supplying filter tuning data to said converter as claimed. Katsuyama discloses in figure 4 a digital/analog converter 12 for controlling a variable filter 4 and a memory containing a look-up table (included in CPU 13 as disclosed at column 9 lines 5-8) for receiving a channel request and for supplying filter tuning data to said converter (see column 8 line 60 to column 9 line 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Katsuyama to the above combination, in order to enlarge the degree of freedom in designing the variable filter (as suggested by Katsuyama at column 9 lines 17-19).

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Muschallik as applied to claim 1 above, and further in view of Hayashi (6,909,882, cited by examiner).

As to claims 6-8, the above combination of the admitted prior art and Muschallik fails to disclose a variable low noise amplifier and a band limit filter between the tuner input and the low pass filter as claimed. Hayashi discloses a variable low noise amplifier 112A (see figure 2) and a band limit filter 111 (see figure 2) between a tuner input (see the antenna input in figure 2) and a low pass filter (see LPF2 in figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Hayashi to the above combination, in order to remove spurious waves from a signal received by the antenna (as suggested by Hayashi at column 6 lines 6-9).

Allowable Subject Matter

9. Claims 4-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 4, the applied references fails to disclose or render obvious the combination of the low pass filter and a non-alignable high pass filter, wherein the high pass filter having a turnover frequency and a variable bandwidth and located between said tuner input and said frequency changer as claimed.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Galal (6,161,004) discloses rejecting image signals in a receiver.

Cowley (US 2004/0266376) discloses a receiver tuner.

Python (6,915,121) discloses integrated tunable filter for broadband tuner.


Isberg (6,029,052) and Loper (5,179,730) both disclose direct conversion receiver.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T. Vo whose telephone number is (571) 272-7901. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571)272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen Vo



11-27-2005

NGUYENT.VO
PRIMARY EXAMINER